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ABSTRACT

This study examined the initial transition to an online learning environment by college of education faculty and staff at a university in the Chicago, Illinois, area. Using a case study approach, the planning, development, and implementation of a new online course were explored, collecting data to document the process, outcomes, and reflections of the three faculty members and the individual responsible for technical support. The analysis reveals several overarching themes about the implementation of online courses. If possible, faculty who create online courses should have some experience with online instruction. It is also important to develop a course with thoughtful planning and problem solving, and to choose courses that are appropriate for online instruction. Linkage of online components, consideration of needed support; issues of instructional design, and requirements for faculty training and experience must be considered. Two appendixes contain interview questions and follow-up questions. (Contains 2 tables and 15 references.) (SLD)

Designing Online Instruction: Analyzing the Process, Product, and Implementation

by

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Introduction

With the increasing expectation that faculty will use web-based course materials, teaching tools, and multimedia learning resources, instructors face new challenges and opportunities in designing instruction. The U.S. Department of Education reported that in the Fall of 1998, course-specific web sites were used by 40% of full-time postsecondary instructional faculty and staff. Further, 9.5% of full-time faculty and staff indicated that they had taught at least one non- face-to-face class (Wirt et al., 2001). Although statistics show that lecturing remains a common instructional strategy (Wirt et al., 2001), higher education faculty developing online courses have the opportunity to revisit and, perhaps, reinvent their pedagogy. This research study examines the initial transition to an online learning environment by college of education faculty and staff at a Chicagoland university. Using a case study approach, we explored the planning, development, and implementation of a new online course, collecting data to document the process, outcomes, and reflections of the three faculty members and the individual responsible for technical support.

Framework

The framework for the study included both instructional design and information design. Smith & Ragan (1999) define instructional design (ID) as "the systematic and reflective process of translating principles of learning and instruction into plans for instructional materials, activities, information resources, and evaluation" (p. 2). Similarly, but emphasizing the analysis of learner needs, Shambaugh and Magliaro (1997) define instructional design as "[a]n intellectual process which systematically analyzes the needs of learners and provides features to assist designers construct structured 'possibilities' to responsively address those needs" (p. 24). Morrison, Ross, and Kemp (2001) identify the key elements of instructional design as learner characteristics, objectives, instructional strategies and evaluation procedures. Shambaugh and Magliaro (1997) outline eight ID models, commenting that "instructional design is frequently presented through idealized ID process models" (p. 40). For example, ideally, the design process would begin with analysis of learners, environment, and the task (Smith & Ragan, 1999), and then designers would make decisions about instructional strategies and delivery. However, the rapid prototyping model is one based on studies of the ID process in action "and the notion that the design process is complex and unpredictable" (Shambaugh & Magliaro, 1997, p. 40). Further, Shambaugh and Magliaro note that "designs that require the ongoing analysis of the effects of new instructional media frequently use this model" (p. 41). Unique to this model is that needs assessment, analysis of content, and the setting of objectives occur simultaneously with the designing and testing of a prototype. Because "media are selected early in the design process" (Smith & Ragan, 1999, p. 376), this model may mirror situations where higher education faculty are requested to prepare online courses for administrative rather than instructional reasons.

Although ID models may be used to guide the development of online instruction, models or frameworks specific to online instruction are also being developed. Kang's research of 13 individuals involved in the design of six university courses identified components underlying the design process and led to the development of a collaborative model for the design of online courses (Kang, 2001). Gallini (2001) stated that although her model for the design and study of technology-mediated learning environments mirrored "information processing and instructional

design principles, [the constructs] are largely generated from the sociocultural literature, focusing on the social dimensions of learning, influences of the cultural context on the learners, and interactions with a community of learners" (p. 15). Yet another framework to consider is that of information design which examines the design, presentation, and understanding of messages through such disciplines as language, communications, art, and graphic design (Finch & Montambeau, 2000).

Methodology and Data Sources

Data collected for this research study included transcriptions of interviews scheduled approximately once per month (November-March) of three faculty members and the individual responsible for technical support who were involved in the development of an online course for two cohorts of Master of Arts in Teaching (MAT) students. Other data included the transcription of a presentation about the development of the online course by two of the participants at a University faculty meeting in December, follow-up interviews of the three faculty members and Technology Facilitator in May/June, and review of the course web site created and used by the participants in their online teaching. (See Table 1.)

Faculty were located at a university in the Chicagoland area and the cohorts were located in Wisconsin, approximately two hours drive from the University. The two-semester-hour course was developed as the first of three interdisciplinary courses to include content from educational foundations, research, and psychology. Likewise, the three instructors involved in team teaching the course were from these three program areas. The Technology Facilitator was provided through Preparing Tomorrow's Teachers to Use Technology (PT3) grant funding because the cohort groups were part of a PT3 initiative to integrate technology in the preparation of new elementary and secondary teachers. The elementary cohort (N=16) had started the program in Fall 2000 and the secondary cohort (N=15) started in Winter 2001; each student received a new university-issued laptop. Several factors influenced the context in which the course was taught. The program at the Wisconsin site was new beginning in the Fall of 2000, the interdisciplinary course was new, the course management tool (WebCT) was new to the four participants, and the three faculty members had not been team teachers (together) in the past. In addition, the interdisciplinary course was a six-hour course that had been pared down from ten hours, the requirement for on-campus students taking face-to-face classes in educational foundations, research, and psychology.

Analysis focused on the transcriptions of 20 semi-structured interviews of the three faculty and Technology Facilitator. Eight questions asked each month included: How are you working differently in planning this course as an online offering?, What has been the most difficult aspect of the project so far (during the past month)?, and Who or what was the most helpful resource or activity this month? Additional questions were asked during the first and follow-up interviews. (See Appendixes A and B.) The authors used constant comparative analysis (Glaser and Strauss, 1967) to identify emergent themes. The three authors worked together to code selected material to agree on definitions of nodes and to establish inter-rater reliability. *Nudist 5* was used to assist with coding and analyzing data. Quotations from participant interviews that are included below are marked with the filenames and line numbers.

Limitations

Methodological limitations relate mainly to the data sources. The research design was for one interview each month (November - March) plus a follow-up interview (May), for a total of six interviews per participant. However, schedules of participants and interviewers did not always accommodate this frequency. Further, mechanical failure led to the non-recording of one interview. Thus, the number of recorded interviews for each participant ranged from four to six. (See Table 1.) Also due to personal schedules, the final interview for the technology facilitator was completed by him/her sending responses via e-mail. Although other data were gathered to enhance triangulation of sources (review of documents on the course web site, student surveys, and a log and e-mail gathered in the early stages of course development and implementation by one of the authors), their analysis is not discussed in this paper.

Results

As analysis progressed, the authors identified 11 nodes or domains of information: pedagogical beliefs of faculty related to online instruction; pedagogical beliefs of faculty related to face-to-face (F2F) instruction; comparison and contrast of online and F2F instruction; technical skills; technical support; description of online components; description of off-line course components; further application of online course components; perceptions of student views; collaboration in course development and implementation; and university planning, policies, and politics. (See Table 2.) Each domain is described below.

Pedagogical Beliefs of Faculty Related to Online Instruction

Discussion of online pedagogy included concerns about the planning and design of the course, assignments and assessment, and communication with students. Underlying the decisions made during development and implementation of the course were faculty beliefs about establishing appropriate teaching-learning environments.

Beliefs about teaching-learning environment. Faculty were particularly sensitive to establishing a social-emotional climate that would enable student success, especially considering the potential for glitches caused by technology. "[L]earning new content and learning new technology, at the same time, really puts an overload [on students]," explained one faculty member (ReNov6-439). For this reason, when faculty planned small group work, they encouraged student choice of whether to meet in person or via chat rooms. Further, faculty were concerned about the focus on an environment limited to reading and writing (both online and offline) which might not meet the needs of some students.

> So for people to whom reading is an issue, they've got this added load of reading those things that would be helping them to understand the reading, or might stimulate a little interest in the reading that they haven't done yet. (ReMarch23-485)

However, participants did expect that use of online postings would enable students to "digest materials and then respond to questions thoughtfully" (MaJune6-24), provided students had enough confidence in their writing skills and ideas (SpMay18-310). Faculty were interested in

deep discussion as an opportunity to clarify student understanding for at least some concepts to be taught in the course (e.g., learning theories). Use of group work led to concerns about monitoring and facilitating interpersonal dynamics. Finally, a successful learning environment was described as "integrating a student . . . in their learning process, making it meaningful and experiential" (SpMay18-571) and "exciting" (SPMay18-593). Given an online environment, strong concerns were expressed about being able to model good teaching online for teacher education students who were preparing for K-12 positions, and the potential lack of modeling was described as an "ethical dilemma" (ReJan12-330).

Planning, design, and limitations. All three instructors were concerned with teaching a new, interdisciplinary course in a reduced number of hours, considering "what to omit without compromising the integrity of the course" (MiFeb13-262) and wondering if they had "prepared too much, too little, too complicated, too easy" (MiDec4-43). One faculty member hoped that the course design would move away from a week-by-week approach, "preferring to think about projects and blocks" (ReJan12-119) since students were not meeting weekly. However, the syllabus was designed in a traditional, weekly format. Instructors agreed on the "skeleton" of the course and then adapted previously-used or created new activities and handouts for the WebCT site.

> In my case, it was a lot of rethinking about what I teach and how to put it in writing. And to spell out everything very, very clearly, because you do not have the benefit of standing in front of the class, explaining something. (WCDec7-293)

Faculty also worried about making material "come alive" (SPMay18-69), rather than just presenting an article and good questions.

While teaching methods varied across the three instructors, they appreciated the opportunity to review their planned activities and documents with one another. Some differences were related to course content (e.g., statistics vs. learning theories), but instructors linked to one another's materials when suitable. In fact, helping students see "the whole picture while working on. . . each . . . activity on its own, or each reading on its own," was viewed as important (SpMar26-332). Some instructional strategies were limited by the inability of the University to provide required support (e.g., video). Further, instructors were concerned about how they would facilitate small group work and provide guidance for research projects through online mentoring. One instructor reflected that faculty planning was working backwards because of being required to use online activities: "You should be thinking of the experiences you want students to have, and then decide what the tool is" (ReMay14-481). No online instructional material or strategies were pilot tested. Looking back, instructors wished that either students had had prior experience with online activities (particularly through WebCT) or that time in the course schedule had been built in for introduction of the course management tool. In addition, some planned activities which involved group posting and summaries of these postings were found to be too time consuming.

Assignments and assessment. Instructors were flexible with deadlines for assignments because this was the first time for online instruction of the course, but this later proved problematic. Some students had not turned in any assignments by the sixth week of the ten-week

course. Being so flexible led faculty to face a grading crunch at the end of the term; further, delayed postings to online discussions earned points for students without necessarily enhancing online conversation during the course. When students expressed concern over the amount of time they were spending on the course, faculty developed a survey to get a sense of how much time students spent on "academic tasks, as opposed to the technical" aspects (MiFeb13-40) and compared results with the instructors' own estimates of how long specific assignments might take. Instructors described a tension between being "fair to students, but also [to] not water down what we are doing just because it is an online course" (MiFeb13-44), and to not let students blame technology for their incomplete work.

Instructors found that they often needed to create an additional explanation page for each assignment, including step-by-step instructions, and they sought a balance between assignments students could check on their own (e.g., answer key provided for practicing APA style) and providing personal and/or immediate feedback via email. One instructor tired of reading assignments submitted online and printed these to review and write comments on. Instructors also fretted over a blatant case of plagiarism and thought about how to create assignments that required original work from students. In addition, instructors expressed concern that some student postings showed no connection to their assigned reading, suggesting that some students were "just spinning off of prior people's entries, and they haven't really done the reading" (ReMar23-470).

The use of rubrics to evaluate assignments was mentioned, with encouragement for students to provide feedback to one another and to evaluate small group participation as well. These techniques were viewed as especially appropriate for students who would soon be teachers themselves. Instructors sought feedback from students as input for revision of assignments for future online groups and planned revised readings based on difficulty of material for these groups of students. Finally, even though the online syllabus provided information about which of the three instructors made specific assignments, sometimes students submitted these to the wrong instructor.

Communication with students. During an early face-to-face session, faculty and students discussed a communications protocol for how they would interact, particularly so that students would not expect instructors "to be on call 24 hours a day" (ReJan12-568). Online office hours were not seen as being used that much by students, and live chats were discounted because students hadn't agreed when enrolling to be available at a certain day and time. Another perceived difficulty with communication was that these two cohorts of students met in face-to-face settings for other coursework; thus the students themselves were well-acquainted with one another and the faculty were "the outsiders" (ReJan12-266). Faculty found that students frequently communicated with one another to clarify assignments, although, at times, this could lead to a misinterpretation of the assignment's original design. The use of e-mail to communicate with selected students was problematic: "When I write an e-mail saying, 'You must respond,' it doesn't do me much good if they're not opening their e-mails" (ReMar23-347). But, instructors did send group e-mails to alert students to due dates and changes on the web site, for example new discussion topics. One instructor commented on the real effort to create a sense of community through providing students with a lot of immediate feedback; however the instructor was distressed with amount of time this took.

Pedagogical Beliefs of Faculty Related to F2F Instruction

Approximately one-third of the course was taught in a face-to-face (F2F) setting, including the classes at the start and end of the term. Participants spoke often of the advantages to F2F instruction, but rarely of disadvantages to teaching in this mode. They tended to speak of F2F in three ways: (1) in the context of comparing advantages of their prior F2F teaching to some aspect of the current online course, (2) in reference to specific aspects of F2F teaching that they missed the most (and therefore likely valued), or (3) as a way of highlighting aspects of technology already integrated into F2F courses previously taught. When speaking about initial concerns with the current course, the technology facilitator shared his/her belief that relevant technology should be integrated with instructors' teaching of content from the first class session, which was to be F2F. He/she was concerned that he/she might not be able to model the integration of the two, yet seemed to put the primary responsibility for initiation of such modeling on the instructors: "...[A]nd now I'm realizing that if they don't plan on having some of these things integrated into their explanation...students may not understand how it all fits together" (MaDec5-329).

Perceived advantages of F2F. All three instructors believed that course content could be taught well F2F through a combination of readings and follow-up classroom discussions . For one participant, the live classroom discussions were a primary and critical juncture where conceptualizations "gelled" for many students. Two participants commented that when readings were unclear, complex, and/or otherwise "dry" it was the instructor's very presence that mediated these issues, often through humor and enthusiasm (SpMar26-710). All three spoke of the importance of "connecting" with their students face to face. "You cannot take a teacher that is a human being, and have the ability to touch human beings, and put it online" (SpMay18-106). In a related theme, the technology facilitator stated that even in an online course, there should be a beginning and ending F2F class session, "....because you still need to have the human interaction that...makes learning...that gives learning its motivation" (MaNov11-246). Participants described a second kind of "gelling" that occurs more easily in F2F contact: the development of community. In reference to an additional F2F class meeting set up with students, one participant said, "I think it was one of the best ideas we had....the process, and the richness of the... information we got, the rich information that they got from us, and learning to know us more and us learning to know them more..." (SpMay18-213).

Missing F2F. In different ways, all three participants expressed sadness and/or frustration about not being able to teach more often in a F2F mode in the course. One aspect missed seemed to be the energy the instructor felt in response to "live" positive student feedback. At one point in the course, one instructor did directly acknowledge his/her own frustration and a lack of motivation, due in part to students who weren't "...doing very much" in the online course, and in part because of teaching an apparently lively F2F class during that same term. "I can hardly get myself motivated....I'm not getting the energy that I get in teaching....from that interaction with students....If you're not getting much back from them..." (ReMay14-1343). Time was a second aspect missed. Specifically, the lack of F2F time allotted in the course was frustrating to begin with, yet was exacerbated further by the demands of team teaching. "And I'll get to see them F2F only once, and that will be...all three of us. So I don't have more than maybe an hour and a half for myself, and that's not a lot at all" (MiMar20-177).

Integrating technology in F2F courses. The three participants entered this project with different levels of technology expertise. The instructor who was most experienced and likely most comfortable with technology commented about the value of having incorporated technology tools into his/her prior F2F teaching. This instructor also spoke of an important aspect of teacher-training programs – familiarity with technology. "I really see how the richness that the addition of those tools has added to my face-to-face classes....It's created its own anxiety for some students; but they all tell me, in the end, that they feel good about...like they're starting down the road--that they've all sort of known that they have to get with this . . .if they're going to be teachers. They all know that....And so, it provided the opportunity, with an arm around the shoulder, to do that" (ReMay14-744).

Comparison and Contrast of Online and F2F Instruction

Similarities and differences between online and face-to-face (F2F) teaching methodologies as described by participants portrayed a complex and sometimes (seemingly) contradictory picture. As the instructors deconstructed these two teaching modes, several mitigating factors emerged. Broadly, they might be grouped into three categories: online and/or F2F factors influencing the actual content of the course, group process/dynamics, and student motivation.

Course content. A top priority for all participants in this course was the quality of instruction. As the technology facilitator began this project, he/she stressed the importance of "...keeping the same quality of instruction that you would have in a face-to-face class....If you start to lose that quality, it not only is upsetting to the instructors, but it's also upsetting to the students" (MaNov11-188). Yet as the course developed, participants expressed their dismay with having to drop typical F2F course requirements: "...[T]here was no way we could do this....The level of anxiety was so high, and they feel so overwhelmed and overworked, that no way could I say, "Now we have an exam..." (MiMay16-505). In addition, participants reflected on the initial deletion of some content due to the reduced semester hours (ten to six) of the interdisciplinary course.

Textbooks presented a different problem--developing students' ability to grasp sometimes complex concepts online:

> "It's a very demanding book. It's very complex....I chose not to ask them to read this book for online discussion. I chose a much simpler chapter....because I felt not all of them will be able to read it in depth. "[In a F2F class]...they will read a book, feel confused, see me, and be less confused; because...we'll discuss it.... Here I don't have time to go over explaining the book" (SpMar26-710).
>
> "...it's the difference between reading a book and hearing a storyteller....I suppose we could have video....but it doesn't feel quite the same as a conversation" (ReJa12-166).
>
> "...but I think its hard to learn from a book....APA style worked very well online....The paradigm dialogue....to some extent; but you don't have the rich conversation we could

have in class....[this quantitative research] is a difficult course to teach online and do it well....unless you may have some fancy software that allows you to manipulate things" (MiMay16-116).

Group dynamics. One participant felt that teaching students who were already in a cluster was difficult regardless of teaching mode; however, teaching them online with only a couple of F2F sessions only increased his/her own feelings of being an "outsider" with the students (ReJan12-266). Another described that when some students were given constructive criticism online, they took it very personally. This participant surmised that when there was no F2F contact with the instructor "mediating it," all some students could see were corrections on their exercises, not the instructor's attempt to help them (MiMay16-310).

Student motivation. All participants felt that motivation was a primary component of students' ability to engage this course successfully. As each participant raised and discussed this factor, different aspects arose. For one, student choice was critical:

> "We tend to focus on the technical skills needed to do an online class...that's the wrong place to be looking.... it's whether you have the background, the motivation...Did you have a choice in it....because you are really excited to learn about this?" (ReMay14-855)

For another participant, the central importance of student motivation in F2F or online courses differed only in degree. This instructor stated that "It always ends up being the good students...[those students who]...pace themselves correctly...who are motivated" who would succeed in either instructional mode (MiMay16-240). For this participant, motivation and perseverance perhaps become even more crucial in an online course.

Technical Skills

Although participants wished they had had experience with WebCT prior to starting to design the online course, they described growth in their knowledge and skills as course development and implementation proceeded. Even the individual responsible for technical support to the faculty was new to using the tool. Only one of the three faculty members had experience in using an online course management tool (Nicenet) and also some knowledge of html. This faculty member learned a variety of skills and shared them with the rest of the group, including html editing of documents posted on the WebCT site, management of messages on the discussion board, and group e-mail. Other faculty were pleased to learn to use the discussion and chat features and to upload and link documents, but expressed concern that they needed to rely on tech support staff or another faculty member for assistance with more advanced features. The technology facilitator recommended that faculty take "time to learn how to solve the problems for yourself especially after you have been provided assistance" (MaJun6-108). However, another participant reflected that some individuals new to technology may be afraid to try new skills for fear of making mistakes. After exploring how to use the class presentation tool, one faculty member recommended that instead students learn to make web pages to share their projects. This instructor wondered whether students would consider learning to use advanced features of WebCT as a valuable skill because it would probably not have an application in the K-12 setting as would learning to build a web page. Faculty expressed appreciation for their new

skills and knowledge as well as an increasing comfort level. "[N]owadays, it's a good feeling to know what . . . it means to teach online. It almost is becoming like the 'in thing' or the fad or something, that you're at the cutting edge" (MiMay16-950). And, interestingly, the faculty member with the best technical skills still reflected on his/her anxiety when tackling something new.

Technical Support

Participants commented on the support or lack of support they received, the variety of people providing support, the dynamic nature of roles and responsibilities of those involved, and the need to trust those putting course material online. While initial references to support referred to planning meetings and books/articles about the design and implementation of online courses, most references to support dealt with the use of WebCT. As course implementation proceeded, participants at first identified the individual responsible for technical support as most helpful; however subsequent interviews identified one of the faculty members as most helpful. Even the technology facilitator remarked: "[One faculty member] understands exactly what he/she needs to have done. And in the development of it . . . [this faculty member] has been a person that's pulled this together for the other two instructors" (MaMar5-278).

Barriers to development of the course were seen as an early introduction to a variety of communication tools (Intranets, eGroups) adding perhaps an overload of information (prior to access to the WebCT course site), the need for computer equipment with Internet access for two faculty members, and different versions of word processing software that limited exchange of files. Frustration was exhibited as participants described the fact that not all materials they had developed were on the web site when the course started, destruction of the site by a hacker in the first weeks of the course, misinformation about features of the WebCT software, and the perceived lack of support in meeting faculty requests for changes on the web site. The initial lack of control of how things looked and worked on the web site (after documents were converted to html) led the most technically proficient faculty member to request help, send reminders, consult the WebCT Help feature and other University personnel (not involved with the project), and to subsequently take responsibility for fixing things on his/her own. Thus, initial roles and responsibilities shifted as this faculty member assumed duties (without additional load hours) that were initially perceived to be those of the technology facilitator. However, faculty did try to shift student inquiries about connecting to the web site to the technology facilitator. One additional layer in the process was the use of an outside agency to host and assist with maintenance and backup of the web site. Faculty also commented on the lack of a real forum for problem solving: "There need to be systematic times to sit down and [say] 'Okay, what's working? What isn't working?' But basically, when we have those kind of meetings, it's all about what's working" (ReMay14-1629). Even after an additional term of online teaching, one faculty member wished for more instruction on using WebCT; reflecting on early training provided by the University, this faculty commented, "When we had the training . . . at that time, I didn't know what I would need" (MiMay16-584). However, another faculty member simply preferred continued technical support to putting material online.

Description of Online and Off-Line Course Components

Descriptions of Online Components. During the interviews participants often described items on the course web space or to be put on the web site and tools that they used such as e-mail, chat, and threaded discussions. Although they used some materials that had been handouts for their previous classes, they were excited to have created original documents for the course, too. Some components were created by individuals, while other components were collaborative efforts. Although most of the documents posted were strictly text with links, there were some tables and charts and concept maps. The homepage for the course web site included WebCT graphical images. All participants expressed desires to use more advanced technologies to include more interaction and visual formats, which were not yet available to them. One participant was always willing to go to the web site during interviews for this research to view these documents while discussing them. Another participant did so gradually, while the third participant declined.

Below is a list of components discussed by the participants depicting the chronological development of the course web site.

October & November (Preparation, then first components posted):
table comparing quantitative and qualitative research paradigms
guidelines for creating surveys
guidelines for article critiques
web site lists for resources
beginning work on flowchart of types of research for educators (prepared with *Inspiration* software which the instructor learned to use specifically to create this digital model)
exercises for assignments on research (small group)
exercises on APA style

December ("Finishing touches"):
syllabus
assignments schedule
research project--qualitative and quantitative
continuing work on flow chart
article critique assignment

January ("It's all online"):
help desk
FAQ w/actual student Q & A
online protocol, including netiquette
communication protocol, including problem solving (produced by students and faculty at an initial face-to-face meeting)
address book with student and faculty information.
student tips page
page linking all the projects
examples of online postings
online discussion questions

assignment to interview a child (what's it like to be in school?) for philosophy of education, then linked to interview guidelines/techniques [example of integrating the content areas together]
checklist for a clinical interview
theories WebQuest
resource page on theories with additional links and terms anchored to a Glossary

February & March (Last assignments):
Ideal School Project (in WebQuest style)
discussion topic for lessons learned about technology

Description of offline components. There were no direct questions and thus very little discussion of what instructional components/materials the participants would use in the face-to-face sessions. The items that they did mention included: hard copies of some online documents, textbook and workbook exercises, and a handout from technical support with technical Q & A.

Further Application of Online Course Components

As participants developed components for the online course, they discussed the possibilities for further use of these online components outside of the PT3 online class. As time went by, they were excited at having created numerous instructional materials and activities that they had never had the time/need to do previously and that they would be able to use in other classes. Instructors also used new tools in the online environment that they wanted to apply to their other courses, including resources on the WWW (created by others). The use of the Web itself as a new resource was one of the early applications recognized by a faculty member who stated, "So there is a lot of information out there . . . I found a lot of good sites that students can visit. So, I think [these] will be useful for me, for my other courses, anyhow" (MiOct31-195). Another instructor created a Web resource list, remarking, "I now have it so I can send it to other people, too" (ReMar8-770).

One faculty member planned on using components he/she had created in revisions to a book he/she had authored. After using the threaded discussion component for the first time, two of the participants spoke of using some form of that tool with face-to-face classes. And one participant created materials such as student exercises, guidelines, and detailed assignment directions that they planned on using in face-to-face classes in the future. One participant developed a two-step online group activity for students: in the first step students became experts in a particular area in each group preparing a presentation for their content, and in the second step they regrouped to teach each other through online discussions. "And in [this] class, they taught each other, right? . . . .I have never done it before, and it was something new for me, and I'm going to do it. . . Now, so this is one part of--content-wise--that I'm—I'm going to add" (SpMay18-281). One faculty member who worked with adjuncts continually spoke of a commitment to share these components with others. " We now send copies [of these newly created exercises and assignments] to our adjuncts to use and to other full-time faculty" (MiMay16-212). "And we're also putting them on the [department's] Web forum" (MiMay16-234).

Perceptions of Student Views

Participants attempted to understand and incorporate student reaction and feedback throughout the course in the service of evaluating how they might vary instruction accordingly. Several themes emerged.

The first and perhaps earliest feedback received by faculty revolved around issues with technology. Clearly students in the new (secondary) cohort felt overwhelmed by technology demands upon first entering the program, a feeling that was at times perhaps exacerbated by a perceived dearth of University and technical support given them (e.g., new computers were distributed after the first class meeting). As explained by one instructor, "When things did not work as they should have...I was frustrated...When I came to class . . . I saw the resentment of the students" (SpMay18-620). Though over time both face-to-face class sessions and technical support likely helped reduce their anxiety, students continued to be overwhelmed (MiJan.11-262). In a related issue, participants felt that students should have been required to have prerequisite computer training/literacy before the first class started. Further, the difference in overall confidence level between the new and the continuing cohort was striking for one instructor and was attributed both to a difference in technological skill levels and to "...the problem of both starting new graduate level classes and learning computer skills for the first time" (MiJan11-173)...A second instructor recognized this difficulty as well: "You know, they're not coming for a master's in technology; they're coming here for a master's in education...if halfway through the [term] they're still struggling with how to make use of it [course management tool], that tells you something...maybe we're not thinking of the students' point of view, [but]...maybe of the faculty's." (ReNov6-250).

In a second, related theme, students "complained vigorously" about what they perceived as a heavy course workload. Many said they preferred being in a face-to-face and not an online class; they did not have a choice in this (ReMar8-78). Some stated that there was too little time to complete course requirements. Upon reflection, one participant partially attributed this apparent time issue to underlying technology access issues. Students were often accessing the course from home, where Internet connections could be slow, there might be only one phone line, and/or the student had to interrupt their studies to attend to children or to other family matters. "So how much of this is a perception that's based less in the amount of time they're actually doing work for the class, and how much of it is the perception because of all the challenges of getting the work done...[it] might exacerbate it if you've got...access problems" (ReNov6-314). In contrast, the technology facilitator suggested that the time issue was likely not a function of technical issues, but of the content demands of the course (this six hour course had been pared down from ten hours, the requirement for on-campus students taking face-to-face classes). He/she cited the results of a PT3 survey given to new and returning cohort students as the basis for his/her suggestion (MaMar5-419).

Despite student frustration and anxiety, a sense of community apparently began to develop. All three instructors separately mentioned how pivotal one particular, additional, six hour face-to-face class meeting was in shifting student perceptions of faculty, of themselves, and/or of the course itself: "...[B]efore...from their point of view, is 'us vs. them,' and the three of us were part of the 'them'....It became...our problem--the three of us and the group, trying to

figure out how to do it better...we...and they felt like a partnership..." (SpMar26-303). Students gave faculty feedback during this meeting about things they liked about the course: "[T]he content was interesting... the fact that we responded immediately to each one of them...one group talked about how they became a real group...in their chat room, they finished each other's sentences...this group...became a community" (SpMar26-313).

Collaboration in Course Development and Implementation

Participants spoke of many facets of collaboration. Given that none had taught together before teaching this course, and that the course itself was new, it is of note that by the end of this project, all participants valued and enjoyed working together: "...Collaborating with my colleagues has been very interesting and worthwhile" (ReMay14-1792). Participants were quite enthusiastic: "...One of the things I most enjoyed this year was the collaboration...I think this is the best part of the course" (SpMay18-122); "...the...social aspect of our work...was, we all concluded, the best part of the course" (MiMay6-640). Further, instructors stated how important it is to work with someone with whom you get along well: "...[Y]ou do spend a lot of time, and can support each other....We...complained to each other, and celebrated successes with each other....It's also a series of compromises" (MiMay 5-679); "...I don't know if it can be replicated. It's who's there....if it's going to be...somebody else, it could be different" (SpMay18-226).

One kind of collaboration between participants involved compromise. Initially, frustration was expressed: "The collaboration is very challenging, because you have to always consider the others' needs, and you want to complement each other, and not teach parallel to each other, sort of your own thing" (MiOct31-184). Instructors had to agree on the structure of the course (e.g., creating a syllabus, agreeing on a schedule, deciding the number of point assigned to each exercise, comparing notes about students who were and weren't doing well, and assigning a grade to each student at the end).

Arriving at consensus was a source of frustration at times, in part because it involved not only the participants, but also seven or eight others, including the technology facilitator and (on a very part-time basis) a technology integration specialist in Wisconsin: "...[Y]ou know, there are this many people making the decisions...it takes forever!" (ReMar8-614). And again: "...[Y]ou really have to value collaboration a lot...because it is hard work....and if the communication isn't good...you can spend a lot of time going around in circles" (ReMar8-600). Speaking from a different perspective, the technology facilitator explained that part of his/her task was to educate all to a different point of view concerning the need for consensus, "...making sure that everybody knows that if you change one thing on one area [online], it's changing it for everybody"(MaNov11-124).

The use of email as a primary means of communication between staff presented its own problems. One participant described how hard it was to rely only on written words, without the benefit of tone or inflection, when trying to communicate with someone you don't know very well. Assumptions can be made (e.g., the sender thought an email was friendly; the receiver found it patronizing). One participant explained that when a prior relationship isn't present, you

have to use many more words to get across the "tone" or feeling of what it is you're saying (ReMar8-650).

University Planning, Policies, and Politics

Participants had a variety of issues concerning the University's planning, policies/procedures and politics. Comments included the nature of the development of the course and their original involvement in the project, issues about student prerequisites/readiness and choices, time issues which were intertwined with faculty support through teaching load and compensation, roles and responsibilities within the project, University technical infrastructure, and intellectual property.

Participants were originally involved through their various departments in the complex task of creating a new masters' program core by integrating and compacting five courses totaling ten semester credit hours into three sequential courses totaling six semester credit hours which would be enhanced by technology. Very soon after initiating this task, they were told that these courses were going to be an online offering in the PT3 project. Because of their commitment to the integration of the courses, all three faculty members continued to work together on the course development. At the last interview one of the participants commented that ". . . even though we originally created this class to teach face-to-face, ... [i]t's never been offered face-to-face," and lamented the potential loss of that opportunity (ReMay14-1838). In the later interviews all three participants were concerned about future offerings of the courses. One doubted that the uniqueness of the team-teaching could be replicated, while another was very concerned about mentoring adjuncts and the time and compensation that might be needed.

Student recruitment and admission by the University and program descriptions became concerns once the participants began teaching the first course. All three participants had concerns about student readiness for their online offering and began to recommend that students must meet some technology prerequisites (e.g., be able to send e-mail attachments). There was also some concern that students who had joined the cohort for the masters' program didn't understand that part of their courses were going to be online and had no alternatives.

Early communication concerns were based, in part, on unclear roles and responsibilities within the project. Faculty had difficulty getting things done--arranging F2F class meetings, notifying students, checking schedules because of this problem. "We tried to actually clarify duties and roles and responsibilities . . . at one point, and that just hasn't. . . worked, and it hasn't helped" (ReMay14-1524).

Time issues related to teaching load and time for course preparation were mentioned often. Faculty continually reiterated their concern about quality. One faculty member stated, "I'm concerned about having enough time to do this well . . . the lack of realization, on the part of the people who are planning these classes [administration planning offerings] . . . in terms of the amount of time it takes to plan and then to interact with the students. . . " (ReNov6). In addition, they recognized that they would need time to learn the technology, too. Closely related to time was the issue of compensation. One participant was not so much interested in compensation but rather suggested that the University administration needed to assist faculty in online development in other ways. "[The faculty] need the time to create good materials, and they need the technical

training. And, of course, . . . the students need to be ready for it" (Mimay16-1064). While one faculty expressed satisfaction with the load hours allotted for course development, another felt frustrated about not getting the time needed.

Concerns were expressed by participants about the University's lack of reliable technology infrastructure: "And I think this should be a given. To me, if you expect universities to provide online courses, the technology infrastructure should be working well. This is. . . . I mean, this is the base" (SpMay18-411). They also commented that they were unable to carry out the use of some advanced technologies because of lack of University technical support.

Lack of a University intellectual property policy (although under development at that time) didn't directly come up in interviews, although it was discussed at the University faculty meeting. However, all participants acknowledged that their materials were to be shared by future instructors of the course as well as others. At the University faculty meeting, a participant concluded, "Can we each agree, on behalf of the group here, for-to the University-I'm not sure to whom. . . to look for ways to guide us, as far as, as we said, this maze of-umm-copyright, intellectual property-what to do with that. And then, that's not as important-at least to me, personally-as to find a way for all of us to share, so that we do not have to reinvent and to design new materials that are already there" (WCDec7-907).

Conclusions

Several important areas or domains emerged from this study that should be taken into consideration by faculty, instructional designers, and technical support personnel who work together toward the design and implementation of successful online instruction. Areas related to faculty included pedagogical beliefs regarding both online and F2F teaching, technical skills and support available, development of both on- and offline components of the course, and collaboration in course development and implementation. Student views regarding online teaching and learning were indirectly accessed through faculty perceptions. Finally, participant reflection on university planning, policy, and politics provided perspectives on the context in which the teaching occurred. Aspects of each of these areas are described above. Based on our analysis, we identified several overarching themes for which we make recommendations below. Several of these recommendations stem from the (1) design of our study with a focus on *initial transition* into online teaching, and (2) the context for our study which included many other "first times"--first time this interdisciplinary course was taught, first time for this team of faculty to teach together, and first time for faculty and students to use this course management tool.

1. Consider What It's Like for Faculty Who've Never Taught Online

If at all possible, faculty who create online courses should have some prior experience with online instruction. This may be as little as visiting another professor's online course for a couple of weeks or actually participating as a student in a short-term online course. Even using a course management tool such as Nicenet in support of a F2F course can provide some insight into what it's like to teach online. Some prior experience will assist faculty in envisioning how a course might come together: "It's a very gray and abstract idea of how to teach with technology, especially the online aspect of it, and . . . some people really need to see the hands-on and do the

hands-on before they can actually picture how they're going to be delivering it to a class" (MiNov1-155).

2. Consider Complicating Factors and Problem Solve in Advance

Developing a successful course requires thoughtful consideration, planning, problem-solving, and action related to factors that may have a negative influence on new course and/or program implementation. A course offered for the first time, courses with interdisciplinary curriculum and/or team teaching, students new to using technology (and to obtaining and using an Internet Service Provider from their home), required participation for students in online courses, and infrastructure (adequate hardware and helpdesk support) are all areas to be reviewed in assessing and addressing potential barriers.

3. Consider Courses/Content Appropriate for Online Instruction

Selected content can be learned by students through reading, writing, and asynchronous discussion. On the other hand, when the educational objective is to prepare students to be effective classroom teachers, then instructional strategies for modeling/mentoring of good teaching are best conveyed through demonstrations and practice.

4. Consider Hybrid Courses That Combine Online and F2F Instructional Methods

Hybrid course design combining both face-to-face and online learning environments allows faculty and students opportunities to overcome some of the problems of strictly online courses and yet take advantage of online course benefits. In their interviews, faculty commented that students whose cognitive learning style favored reading and writing would be most successful in this online course. Alternately, those who learn best through oral language, who lack confidence in their written language skills, and/or who are relatively slow at keyboarding can be better accommodated with broader options. Finally, F2F sessions will enable the instructor to provide scaffolding for understanding difficult concepts and/or procedures.

5. Consider Time and Effort to Develop and Link Online Components

The process of developing online components takes a great deal of time and is an ongoing process of continuous evaluation and revision throughout the course offering. Effective online materials are not just a matter of putting up lecture notes and assignments. In this study, the need emerged for additional explanations sheets for many assignments, posting FAQ, group process orientation and monitoring, and graphical explanations through tables, flowcharts, and concept maps. Encourage instructors to take ownership of and pride in course documents and activities that they have taken the initiative to develop, whether alone or in partnership with another instructor.

6. Consider Opinions About and Need for Support

Clarify roles and responsibilities of those involved in the development of an online course and plan regular meetings to debrief on progress and process. In advance of the course,

plan adequate training for faculty to help them use the selected online course management tool and provide avenues for technical assistance dependent upon an assessment of individual faculty skills and time as reflected in faculty load hours. Openly discuss what's working and what's not working and problem-solve together. Be sure that no one feels overburdened by assuming duties and attending to details that have fallen through the cracks. Decide in advance that the technology itself will not serve as an excuse for student lack of performance, and be sure students understand how to get technical assistance from the appropriate provider (university or ISP) when they need it. Further, strong consideration should be given to developing a policy regarding recommended equipment configuration and pre-requisite technology skills that will enable students to be successful in the course.

7. Consider Involving an Instructional Designer

Moving beyond technical support for putting material online, instructional designers can help faculty, who serve as subject matter experts, examine appropriate chunking, strategies, media, and assessment for creating interactive online learning environments. Further, instructional designers can aid faculty reflection on pedagogical beliefs about what types of instruction can occur online (e.g., new skills and knowledge vs. in-depth understanding of theory). Such team work in course preparation is far from the norm, and faculty would need to be open to recommendations for redesigning their instructional strategies and materials and would need to plan ahead, taking into consideration that team communication and development of activities may take longer the first time around, particularly if pilot testing of those materials is to occur. Even if deadlines and administrative requests for online courses force rapid prototyping, faculty should not feel the process is working backwards--feeling they should or must work in an online environment, when, perhaps, F2F instruction with selected online components may be more effective. However, a team approach where content experts, instructional designers, web developers, and graphic designers work together (Sonwalkar, 2001), may best determine whether and how interactive multimedia environments can extend the effectiveness of online instruction to the instructor's and the students' satisfaction.

8. Consider Diversity of Faculty Involved: Skills, Need for Support, Pedagogical Belief Systems, and Sense of Satisfaction

The three faculty involved in developing this online course represented three diverse levels of participation, responses to online instruction, and short-term reactions to the experience. Two examples highlight the diversity we found. First, in responding to the challenge of creating their first online course, one instructor relinquished control of the technical side of the course and seemed content to rely on others for technical support. Another instructor relied more and more on his/her own technical skills and assumed much of the responsibility for maintenance of the WebCT site. Transition into this role came when he/she found that changes to and use of the site were not progressing at acceptable levels. Thus, this instructor contributed massive amounts of time which left him/her feeling overburdened and somewhat burned out. The third instructor, who had relied on others for tech support during course development and initial implementation, expressed a firm interest in and willingness to expand his/her technical skills and knowledge during and following the course. Second, satisfaction also differed for individual instructors, and perhaps reflected different points along a developmental path for each.

For faculty who are so motivated, provide opportunities to explore and "play with" different online options, allowing creativity to flourish. As one instructor explained,

> Think about it as a coming into a new world . . . .You don't see everything the first time. But walk. Go ahead. Go and search . . . . So, I think the sense of excitement, the sense of adventure, almost, is a required thing in online teaching . . . . [I]f you look at it as something that has the potential of creating--making learning come alive, because it provides the visual and the . . . world, far away, coming into your own classroom . . . . If you look at it that way, I think it's endless, and it's really exciting. (SpMay18-680)

Dispel the myth that online teaching is of necessity boring after you've taught a course online once and reinforce instructor excitement about using new instructional strategies.

Discussion and Educational Importance

Outcomes of this research, grouped above as nodes or domains and subsequently into conclusions, are reflected in the emerging research, literature, and models for online learning. For example, Kang (2001) included support personnel and technical skills as components underlying the design process; likewise, Gallini (2001) listed pedagogical beliefs and approaches, learning assessment, computer competency, and learner perceptions in her framework for technology-mediated learning environments. As for the Chicagoland University faculty's desire for face-to-face contact, Northrup (2001) outlined a framework for online interaction following her assertion that "[r]elationship building is a necessary component of collaboration and communication and the perceptions of the efficacy of this type of social interaction can impact the learning outcomes of the course" (p. 32). Spitzer (2001) asserted that "good human facilitation can compensate for most other deficiencies, while state-of-the-art technology and fancy graphics alone cannot sustain student interest and motivation for long" (p. 52). As far as faculty workload and time commitment, the National Center for Education Statistics report on *The Condition of Education,2001*, stated that "faculty workload is a key issue" in the growth [or lack of growth] of distance education. Finally, as discussed by Spitzer (2001), faculty may come to find online learning needn't be an "all or none" proposition. "This can include the use of DL [distance learning] to supplement or complement classroom instruction, or the use of a 'live' facilitator to enhance technology-based instruction" (p. 52).

When pressed to answer the question, "Could the entire course be taught online?," the Chicagoland faculty concluded that it could but that it would probably not be as good as a face-to-face course. As one faculty member said, "Maybe it could, but it will not be the same course" (MiMar20-528). From the faculty's perspective, there were techniques they used in their face-to-face courses that they believed they could not replicate in an online environment. Whether this was the case or not, methods needed to be provided for this team of faculty "designers" to formatively evaluate and redesign their first course of the interdisciplinary series of courses while they continued to develop and implement the remaining two courses. "The first strategy used in rapid prototyping is to go light on the early analysis steps of an instructional design model, then develop prototype instructional materials rapidly, and use quick interactive cycles of formative evaluation and revision to shape the final form of the materials" (Dick, Carey, and

Carey, 2001, p. 252-253). Although Willis (1992) suggested that "the best source of revision ideas may be the instructor's own reflection on course strengths and weaknesses" (p. 2), we believe that faculty analysis, reflection, interpretation, and continuing design of an online course would be better conducted through their use of one of the instructional design models or frameworks discussed above.

Using such a model or framework, faculty can be guided into evaluating aspects of the course they may not have thought much about during the development of their initial prototype. This may be particularly important when faculty work alone or with technical assistance but without benefit of a trained instructional designer. Ways in which an instructional designer could have assisted faculty in the development of the course described in this paper included: analysis of learning environment, learner characteristics and pre-requisites, chunking/pacing, materials design, online instructional strategies, and assessment. Perhaps revisions under the guidance of such models would leave faculty feeling more secure in their instructional decisions for successful online learning, a possibility deserving further research. As enumerated by Sonwalkar (2001), "A few important decision parameters include learning objectives, pedagogical learning styles, synchronous vs. asynchronous, textbook vs. experiment-based, media assets and enhancements, duration of delivery, technological constraints, and educational standards" (p. 14). Our research study, like Kang's, provides empirical data to support the development of new models for use in the development and evaluation of online learning and a theory of distance education that considers the entire system, including "planning, instructional design, development, delivery, evaluation, ... policies, learners, content, organizational context or setting, process staff, and communications technology" (Anglin & Morrison, 2000).

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Table 1

Data Sources and Nodes Found in Each Transcript

Data Source	Date	Nodes
Mi's interviews (faculty member)	October 31	app, cc,coll, doc, doff, onl, tsk, tsu, up3
	December 4	cc,coll, doc, F2F, onl, suv, tsk, tsu, up3
	January 11	app, cc,doc, F2F, onl, suv, tsk, tsu, up3
	February 13	app, cc, coll, doc, F2F, onl, suv, tsk, tsu, up3
	March 20	app, cc, doc, F2F, onl, suv, tsk, tsu, up3
	May 16	app, cc, coll, doc, F2F, onl, suv, tsk, tsu, up3
Re's interviews (faculty member)	November 6	doc, F2F, onl, suv, tsk, tsu, up3
	January 12	cc, doc, F2F, onl, suv, tsk, tsu, up3
	March 8	app, coll, doc, onl, suv, tsk, tsu, up3
	March 23	cc, coll, doc, onl, tsk, tsu, up3
	May 14	cc, coll, doc, F2F, onl, suv, tsk, tsu, up3
Sp's interviews (faculty member)	December-January*	cc, coll, doc, doff, F2F, onl, suv, tsk, tsu, up3
	March 5	app, cc, doc, F2F, onl, suv, tsk, tsu
	March 26	cc, doc, F2F, onl, suv, tsk, tsu
	May 18	app, cc, coll, doc, doff, F2F, onl, suv, tsk, tsu, up3
Ma's interviews (technology facilitator)	November 1	cc, coll, doc, onl, tsk, tsu, up3
	December 15	doc, F2F, onl, tsk, tsu, up3
	February 1	cc, coll, doc, doff, F2F, onl, suv, tsk, tsu, up3
	March 5	coll, doc, F2F, onl, suv, tsk, tsu
	June 6	cc, coll, doc, F2F, onl, suv, tsk, tsu
Winter faculty meeting (Presentation by two faculty at a session with opportunity for discussion by those in attendance. Approximately 20 faculty members were present.)	December 7	cc, coll, doc, doff, F2F, onl, suv, tsk, tsu, up3

*Note. Due to mechanical failure the December interview was not recorded. The interviewer requested the participant's reflection on both December and January during the January interview.

Table 2

Definitions of Nodes Used to Code and Sort Data

Node	Description	Definition and/or Examples
app	Further Application of Online Components	Use of online components developed for the online course that will now be used outside of the PT3 online classes (use in book; use in on-campus courses)
cc	Comparison/Contrast of Online and F2F Teaching	Lines that include direct statements comparing online and F2F teaching & learning (using words like "same as, similar"); and contrasting online and F2F teaching & learning (using words like "better than, different");
coll	Collaboration	Reflection on interfacing with co-instructors; teamwork
doc	Descriptions of Online Components	Describing items on the web site (how it looks or works) or to be put on the web site (APA exercise, WebQuest) and tools that can be used (chat, discussion, threads, white board); web site or hacked site; can include student contributions to online components
doff	Descriptions of Offline Components	Describing items (mostly materials) used in F2F sessions or assignments (textbook; workbook; articles)
F2F	F2F Teaching	Descriptions of implementation of F2F instruction; reflections on F2F instruction; feelings about F2F instruction; including missing F2F settings

(table continues)

Table 2 (continued)

Node	Description	Definition and/or Examples
onl	Online Teaching	Descriptions of the thoughts and values behind the design and implementation of online instruction, including limitations; reflections on online instruction; feelings about online instruction; course content; chunking of learning; scheduling of assignments; grading & assessment; getting to know students online
suv	Students: Understanding Student Views	Includes student views about learning community, work load, technology (both tech support & skills); student reflection and feedback
tsk	Technical Skills	Knowing how to make links; knowing how to put documents online; knowing html
tsu	Technical Support	Any person who helps; training; adequate and working equipment; availability and response of people to requests for technical assistance (putting things on web)
up3	University Planning, Policies/Procedures, & Politics	Comments re. faculty support, teaching load, faculty input; includes procedures like room reservations in Wisconsin; university context

Appendix A

Interview Questions (Used October 31 to March 26)

First time only:

1. Why have you decided to participate in developing an online course? What factors influenced you to develop this online offering?

2. What is your prior knowledge and experience using technology for instruction?

3. What is your comfort level with technology?

All sessions:

4. How are you working differently in planning this course as an online offering?

5. What has been the most difficult aspect of the project so far (during the past month)?

5. What skills did you learn about this month?

7. What did you learn about teaching and learning with technology this month?

8. Who (or what) was the most helpful resource or activity this month? Describe.

9. What are your concerns and issues as you develop (are teaching) this course?

10. Would you feel comfortable explaining an online component that the Technology Facilitator has helped you develop? Would you show me this online component? Why did you choose to put this component online?

11. Do you really think this whole course could be taught online?

Appendix B

Follow-up Interview Questions (Used in May/June)

1. Looking back, what kinds of instruction were developed into online components and what kinds of teaching and learning activities could not be implemented online? What parts of your instruction (consider both content and process) do you feel best leant themselves to online instruction and what did not?

2. How did the group make decisions about what components to put online vs. those that were not put online? How did the group make other decisions?

3. What components do you think you will use (have already used) later in a face-to-face class?

4. What kind of student do you think experienced the most success? The least success? Why?

5. As you look back over this project--from the beginning and until now--what have you learned about teaching and learning with online technologies?

6. Whether in online or face-to-face environments, how has your teaching changed since participating in this project?

7. What advice would you give to someone designing online instruction?

8. Looking ahead for the next six months, are there things you think need to be done differently to make the online instruction more effective?

9. What challenges does the group face in continuing to implement online instruction?

10. What kind of technical support do you feel you need at this point?

11. Do you think you will voluntarily develop online teaching and learning components in the future? as a part of this project? independent of this project? working with a group or alone? with or without technical support?

12. Describe the characteristics of the kind of instructor you think will experience the most success in developing online components. The least success? Why?

13. Different aspects of this project may have caused varying levels of frustration for each of those involved. As you look back on it now, how did you handle any frustration that you felt and what would you tell a new instructor to watch for?

14. Different aspects of this project may have increased your sense of satisfaction with or enthusiasm for participating in the development of online components. How would you describe these aspects to a new instructor?

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